The Chronicle
of the Early American Industries Association, Inc.
Volume X December, 1957 Number 4

EARLY HOME COFFEE ROASTERS

By Laurence A. Johnson

(Taken from Mr. Johnson's forthcoming book, The Old Country Store)

In the early days of our country, the use of coffee as a home beverage gained popularity very slowly as the coffee had to be roasted and ground before use, while tea could be steeped without further processing. Before the days that coffee came into the stores roasted, and the stores had installed grinders, these two processes of roasting and grinding had to be performed in the home. Many ingenious devices were made for the process of home roasting and some of these devices could be used for roasting various cereals for beverages and for parching corn.

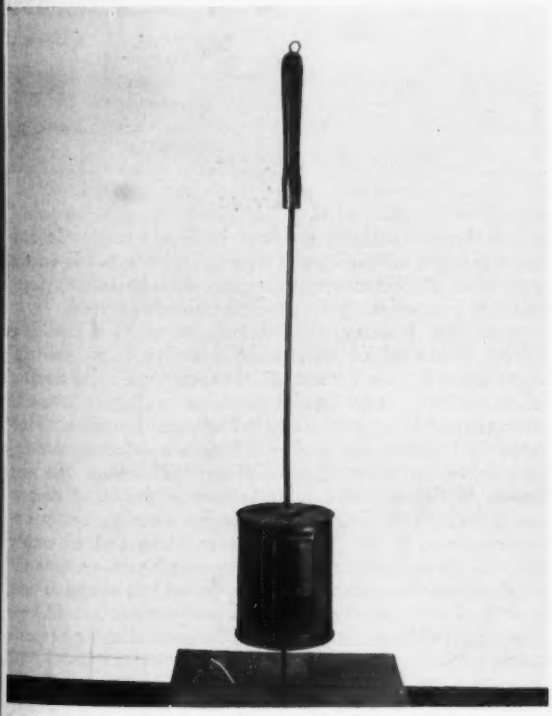


Figure 1

Four of these interesting coffee-roasters are pictured here. Probably the earliest is figure one located at the Farmer's Museum, Cooperstown, N. Y. It is made

Figure 2

from sheet metal and could be used over an oven fire as well as over a cooking hole in a stove. It is opened by a sliding door which is secured by two lips. Figure two is from the author's collection. It is a ten inch cast iron covered pan three inches high, and stands on three very short stilt legs less than a quarter of an inch long. The handle revolves two wing shaped arms which agitate the contents inside the pan.

Figures three and four are two very interesting roasters. Figure three was invented by Thomas R. Wood, Cincinnati, Ohio, patent #6,345, April 17, 1849. The object of his invention for roasting coffee was to adapt the apparatus to the boiler holes of cooking stoves,

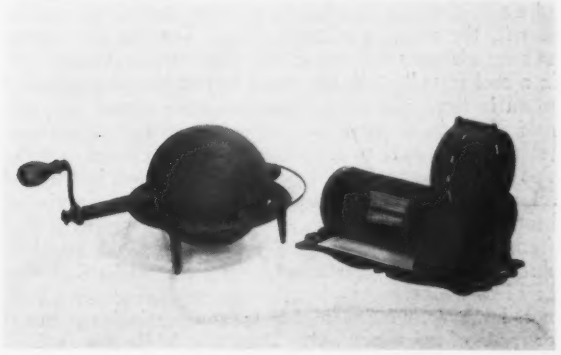


Figure 3 and 4

ranges, and furnaces by making the vessel which holds the coffee of a spherical form rather than cylindrical. The frame or holder of the spherical form is made to fit into the boiler hole and the flanges or feet are made so it may also rest on the floor." We assume, therefore, it could be used for placing over hot coals in a fire place. The top half of the toaster, the spherical ball, can be removed to give access to the inside. The rim is provided with a bail on each side by means of which it can be carried. When placed over the fire the spherical form was turned to roast the coffee. (See fig. 3a.)

Figure 4a was invented by C. A. Mills, Hazel Green, Wisc. patent #38,320, April 28, 1863. It has an encased simple clock mechanism composed of a spring, wheels, and pinions and also has attached to it a small fan blade. Within the coffee roasting vessel are secured a series of oblique plates. These plates are attached one to each side of the vessel and extend diagonally across them. One half of these plates are placed in an

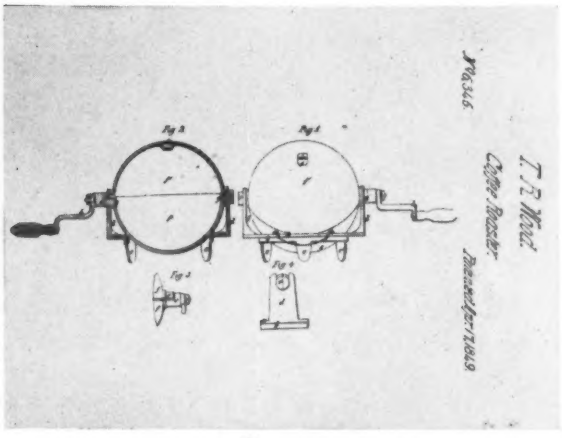


Figure 3a

opposite position to the others, and they are each notched and project radially within the vessel. The tube seen in the drawings communicates with the fan case. "The device is used as follows: the vessel is supplied with the coffee to be roasted and the spring wound up. The device is then placed on the stove or range, the vessel being over the opening of the top plate thereof. The vessel is rotated by the clock mechanism, the fan regulating the speed or serving to control the power of the spring, so that the vessel will rotate at top speed and be operated a sufficient length of time to effect the desired end — to wit, the roasting of the coffee. The fan also serves to eject air upon the spring, and the latter is thereby kept in a cool state." "As the vessel rotates the plates, owing to an inclined position as described have a tendency, one half of them, to move the coffee to one end of the vessel the other half to the other end of the same, and by this means the coffee is kept well distributed in the vessel and every grain subjected to a requisite degree of heat to insure the proper roasting of the same." "The frame and upright plates may be cast iron, the vessel of sheet metal, and the wheels of the clock mechanism may be of cast or wrought metal, the teeth being cut. I do not, however, confine myself to any particular material or mode of manufacture." That Mr. Mills did not confine himself to any particular mode of manufacture is

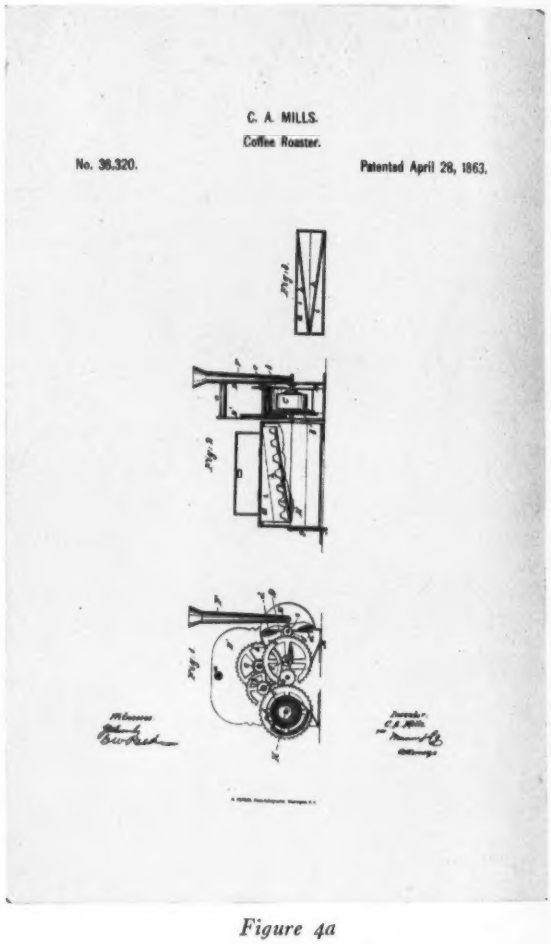


Figure 4a

shown by the author's machine in figure four. It contains two sets of spring clockworks and the fan is on top instead of the bottom and also has no tube leading from the fan nor agitating plates in the roasting vessel.

In the January 4th 1862 issue of "THE GROCER" published in London, England is a picture and description of what is called a Domestic Coffee-Roaster of that time. This device pictured in Fig. 5 was the invention of Grocer Muller of Holborn, England. (Holborn is remembered now by Holborn Viaduct located just north of Fleet St., London.) I believe the one shown in fig. 2 is the older because of its being cast in one piece. The English one would seem to be an improvement as it would be easier to clean and to empty the roasted coffee. It is also interesting to note that the English one was recommended to be sold in stores. There is little doubt that the roaster shown in fig. 2 would be a profitable addition to a grocer's or general store keeper's stock.

Perhaps some that read this article might know whether any of these little roasters with removable lids, have ever been found in this country. Interesting too is the probability that little pre-roasted coffee was distributed through the stores in England in 1862.

There is an interesting story behind "The Magic-

Figure5

This very ingenious and simple machine is designed for the purpose of enabling small quantities of coffee to be roasted by the consumer. It consists, as shown in our engraving, of a circular pan, with a central axis, carrying three arms, that can be made to revolve by turning the handle. The top is covered by a lid, now shown in the engraving. When the coffee to be roasted is placed over the fire, the handle is moved round, so as to keep the beans constantly stirred; thus they are effectively and thoroughly roasted, without being burnt.

We tested the machine and find it very efficient. The Inventor, Mr. Muller, of Holburn, is a grocer, which, in itself, is a guarantee for the practical character of the invention. We should think that the coffee-roaster would be a very useful addition to the articles usually kept in stock by grocers.

Coffee-Settler, figure 6. The author purchased the object from an EAIA member, Mr. C. E. Whittlemore, of Haverhill, Massachusetts. At that time we both considered it an inset trap and it was quite a surprise when upon obtaining the patent papers to discover its true use. The author can verify its worth as it did gather the coffee grounds when he tried it. It was invented by Wm. F. Rossman, Hudson, N. Y., patent # 47,460. dated April 25, 1865. He called it the "Magic Coffee-Settler" for cleansing and settling coffee. "When placed in a pot of boiling coffee where the grounds have been thrown loose in the water, will by producing an eddying current will collect them perfectly, and thus clear and settle the coffee ready for use." It is made of tin, about 6 inches high, and overall is 3 inches in diameter. It was used for a gallon coffee pot, and can be made in size proportionate to the quantity of coffee required. The top consists of a hollow cone, open at the base. In figure 6a., B is a funnel that extends down about one third of the depth of the cup C. The "Magic Coffee-Settler" is placed in the coffee pot either before boiling or at time of boiling and "the coffee being thrown into the coffee pot loose and the water poured onto it in the usual way of making this beverage." "As soon as ebullition begins, a vortex or eddying current is created around the "settler," and the coffee grounds are carried with it into

(Continued on Page 45)

NEW TOOL CATALOGUE

It is not the policy of the Editors of the Chronicle of the Early American Industries Association to publicize any particular publication. However, the Shelburne Museum of Shelburne, Vermont, has forwarded the Editors the following news release concerning a catalogue entitled "Woodworking Tools at Shelburne Museum" by Frank H. Wildung, a member of the Early American Industries Association, and the Shelburne Museum Staff. It is an outstanding job and represents a source of information of great value to future generations. For this reason we wish to present the following.

What is believed to be the first museum catalogue of antique hand woodworking tools has been issued at Shelburne, Vermont. This 80 page booklet contains upwards of 300 pictures and descriptions taken from the Shelburne Museum's outstanding collection of 1600 early woodworking tools.

The catalogue is divided into 37 major classifications ranging from adzes to veneer hammers; from woodworker's floats to shaving horses. Each of these early tools was picked for display in the catalogue because of its unusual interest, historical or otherwise.

Thumbing through this latest Shelburne publication gives one a new awareness of the crossroads of a young country in years gone by — how the early settlers build — what tools they used to fabricate their log cabins, grist mills, barns, and homes. Many of these tools were crude in the beginning, but as time went on subtle changes were woven into them, making them at once more practical and serviceable. The section on the evolution of the bit stock aptly illustrates this change.

One of the rarest tools shown is a small Chinese moulding plane dating back to the 1400's A. D. Fashioned of finest wood, with a hand forged iron blade, it was pulled towards the worker, instead of being pushed, as is customary elsewhere in the world.

Depicted also is a fascinating set of tools used in the making of wooden water pipe. Wood pipe for carrying water is unfamiliar to many but actually this pipe has been in use for centuries in Europe, and in this country it is still to be found in certain cities like Philadelphia. Essentially it is an 8 foot length of log having an 8-12 inch diameter with a hole bored lengthwise through the center. One end of the pipe was tapered, the other reamed out so that an effective union was made. This novel connection has been likened to putting an ice cream cone into a funnel. Being wet the wood swelled and made a permanent watertight joint.

The great 7 foot pit saws which were used for ripping out boards and planks from logs are also shown and described. Their name comes from the fact that one man stood down in the pit, pulling down on his end of the saw, while his partner stood above ground, pulling up. The log lay over the open hole. The splitting froe was an old man's tool, so-called, because Granddad could use it sitting down to split out the early roof shakes and shingles from short lengths of log.

To study this new volume is in effect to trace the history of woodworking from years gone by right down to the present day. This is the third in a series of catalogues that Shelburne Museum is publishing. The other two are on carriages and quilts.

The Chronicle

THE OLD SLATER MILL

Furnished by Old Slater Mill

The Slater Mill at Pawtucket, R. I., first successful cotton spinning mill in America, may appear to members of the Early American Industries Association, Inc., to be somewhat "modern" for their attention, for all that it was built in 1793 and is now the *Old* Slater Mill *Museum.*

As the first American mass-production enterprise and the first to utilize machinery which was both intricate by comparison with household industry devices and, in its main processes, independent of muscle-power, Samuel Slater's mill is definitely of the Machine Age.

Relating it, however, to the purpose of the EAIA as stated in THE CHRONICLE masthead, the mill stands for *early* American industry in the sense that it was an extension or elaboration of "the shop", its machines were "mechanical devices", its workers developed expertness akin to craftsmanship and it was, in and of itself, the earliest successful example in America of machine technology.

Moreover, now, as a museum, it offers a permanent exhibition which affords one of the clearest illustrations to be seen in the United States today of how the transition from household, handicraft manufacture to mass-production, power-motivated machine industry came about.

Pawtucket, Rhode Island.
Built by Samuel Slater in 1793, and in which was first
introduced in America the spinning of Cotton by machinery.
(From an Old Print)

Old Slater Mill — 1793

On the one hand, visitors to Old Slater Mill Museum may see demonstrations of the textile arts as they were practiced in virtually every American home before the keen memory of Samuel Slater, one-time apprentice in an Arkwright system mill in England, gave the United States the secrets which freed the infant republic from dependence on England for meeting much of its demand for textiles.

Contrastingly, machines such as Slater developed and put to use in this building and later models of textile machinery right down to the present — as represented with an X-2 Draper loom — are also to be seen.

The demonstrations are the part of the Museum tour which a majority of visitors find the most fascinating.

The ROOM OF HAND SPINNING offers the first of these demonstrations. Here the Museum guide steps over to a bin of straw which he informs visitors is flax. Picking up a handful of it, he turns to the flax brake and crushes the stalks of flax in its scissor-like bars. This starts the removal of the husk, a process completed with a knife-like wooden paddle or "scutch."

Fine fibers now appear, and these are further cleared of chaff by combing them with a formidable-looking array of spikes called a "hackle."

A woman skilled in the use of spinning-wheels then takes over the demonstration, placing the loose flax fibers, or "tow" on the spinning-wheel, which draws out and twists the fibers to form them into yarn.

Demonstration of the corresponding steps in the processing of wool and cotton may also be seen.

The same demonstrator, Mrs. Maude Ide Crabbs, also shows how the old hand looms in the ROOM OF SPINNING work. She has a piece of material — eventually to go on sale in the Museum's gift shop — almost constantly on one of the two looms.

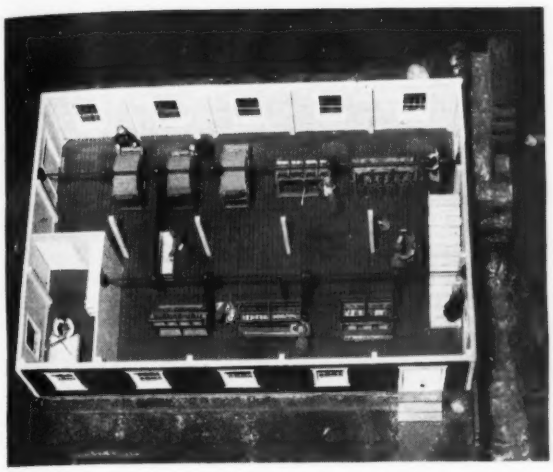
This room also contains a warper, on which the yarn to become the lengthwise threads in a piece of cloth is carefully wound in a way to permit it to be placed on a loom without tangling.

Old Slater Mill — 1957

A cotton gin in the ROOM OF TEXTILE MACHINES is also demonstrated by the guide, James Briden.

Other sections of the permanent exhibition include a ROOM OF TEXTILE INVENTIONS — one of its main displays being the scale model used by Sir Richard Arkwright in obtaining a patent on his "spinning frame" — and illustrations and other memorabilia of Slater's life as an apprentice in Jedidiah Strutt's spinning mill at Belper, England, and later as "the father of American manufacture" — as he was called by President Andrew Jackson.

There's a scale model of the Old Slater Mill. Built 27 years ago for and displayed in expositions by the J. P. Stevens Co., this is accurate in virtually details and, sup-



Model of Mill showing Slater's probable machines

plemented with a roofless similar model, helps visitors visualize actual activities here when this was *the* one power-motivated factory in the land.

This scale model will be rigged up to an electric motor — perhaps by the time this article is in print — as a further help in enabling visitors to see how water power was harnessed to complicated machines to set in motion the Industrial Revolution.

Motivation of a number of key machines in the permanent exhibition is also planned, in keeping with the Old Slater Mill Associations aim of making the Museum a place where history "comes alive."

Most of the items in the Museum's possession are well identified and substantial amounts of information have been gained about them. However, there are a few "whatsits" or at least partial "whatsits" in the attic.

One is evidently a very old hand carding or hackling device, with its spikes — one row of short spikes and one row of long ones — set in horn. Another, undoubtedly a part of some old machine, is a wooden bar with a number of slotted metal burrs through which yarn evidently passed. These partial "whatsits" may well intrigue EAIA members should they visit the Museum.

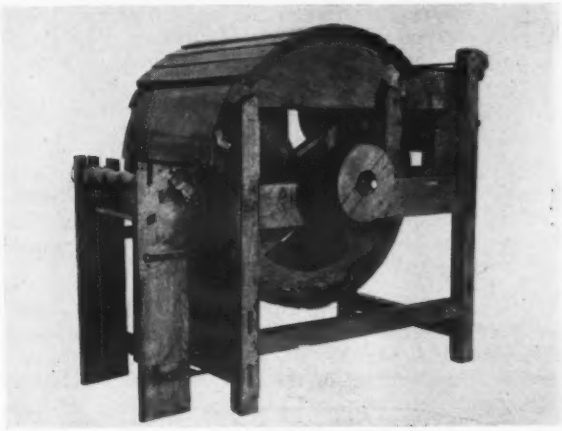
Special exhibitions are also a substantial part of the Museum's program. Two shows featuring handweavers' products were popular events during 1957. The R. I. Weavers' Guild held an exhibition in May and an All New England exhibition follows in September.

An exhibition of costumes dating from 1800 to the present — in which "flapper" styles of the '20s have drawn many a chuckle — was another special event that drew good response. Costumes were loaned by R. I. School of Design. Old buttons from the collections of women of the community supplemented this exhibition.

Attendance has risen rapidly since the Museum was opened to the public in 1955. Tourists, community residents wanting to show guests the points of interest in the community, and school children bulk large in the attendance figures.

The Old Slater Mill Association was formed in 1921 and saved the historic mill building from destruction. Reconstruction was completed in 1925. The pieces for display were collected in succeeding years and a sound financial basis for operation of the Museum was attained by 1955.

Meanwhile, in 1952, the late Daniel Tower became first Curator and began research and the creation of a living museum. Donald Shepard, who set up the Submarine Museum and Library for Electric Boat Division of General Dynamics Corporation at Groton, Conn., has been curator since 1956.



Replica of Samuel Slater's finisher carding engine. The original machine, now in the Smithsonian Institution in Washington, was built by Slater completely from memory, since the exportation of textile machines or their plans was forbidden by British law.

H. Nelson Slater, a direct descendant of Samuel Slater, is honorary president. Norman A. MacColl is active president. William D. Fales, R. I. School of Design textiles department director, heads an advisory committee which has been of great assistance.

Contributions to Chronicle

The Editors wish to present the following report on articles appearing the *Chronicle* in 1956 and 1957. They wish to extend their thanks to those individuals and organizations which have supplied information for the *Chronicle* during the past two years. In studying this list of contributors the Editors are amazed at the small number of contributions by the membership as a whole:

Think Magazine, Cedric Larson, New York, N. Y.; William DeMatteo and Thomas Bullock, Colonial Williamsburg, Williamsburg, Va.; Raymond Townsend, Colonial Williamsburg, Williamsburg, Va. 2; C. C. Samford, Colonial Williamsburg, Williamsburg, Va.; Shelburne Museum, Shelburne, Vt. 5; Henry Ford Museum and Greenfield Village, Dearborn, Mich.; Old Slater Mill, Pawtucket, R. I.; Old Salem Incorporated, Kyle Sterling, Winston Salem, N. C.; Ohio State Museum, John S. Still, Columbus, Ohio; Ohio State Library, John Weatherford, Columbus, Ohio; Adena, Dard Hunter, Jr., Chillicothe, Ohio; Union Fork and Hoe Company, Edward Durell, Columbus, Ohio 2; Northampton, Charles Adams, Northampton, Mass; Corning Glass Center, Corning, N. Y.; National Park Service, J. C. Harrington; Laurence A. Johnson, Syracuse, N. Y. 4; Lawrence Romaine, Middleboro, Mass., 4; Eloise Stedman Myers; Mary Earle Gould, Worcester, Mass.; J. Sanger Atwill, Lynn, Mass.; arsh Foundation, W. P. Brumback, Van Wert, Ohio; Chronicle Reprints - 1; Association Business - 27; Comments from Readers - 5; Articles by Editors - 5; Whatsits - 3; Whatit Committee, Miner J. Cooper, Windsor, N. Y.

SPRING MEETING

At the meeting of the members of the Early American Industries Association at Winston Salem, North Carolina on October 5, 1957 (a report by the Secretary of this meeting is contained in this issue of the *Chronicle*), the question of future meetings was discussed and a program for 1958 and 1959 was approved.

The Spring meeting of the Early American Industries Association will be held at Doylestown, Pennsylvania on June 27, 28 and 29, 1958. The museum is to be closed during the first part of June and as a result our meeting is scheduled slightly later in the month of June.

Mr. Edward Durell of Columbus, Ohio will be Chairman of the Meeting and Mr. Lessey will be in charge of local arrangements. Ample advance notice will be available on the plans for this meeting and the March issue of the *Chronicle* will carry full details on the meeting and the program.

The Fall meeting in 1958 will be held at the Henry Ford Museum and Greenfield Village at Dearborn, Michigan with Mr. M. W. Thomas Jr., Chief Curator and a Vice President of the Early American Industries Association as Program Chairman. As soon as dates are confirmed for this meeting they will be published in the *Chronicle*.

The Spring Meeting of 1959 will be held at Salem, Massachusetts with the Saugus Ironworks Restoration as the host organization. Mr. J. Sanger Atwill of Lynn, Massachusetts will be the chairman. The Fall meeting in 1959 will be at Williamsburg, Virginia with Colonial Williamsburg, Inc. as the host organization. Messers William Dow Geiger and Raymond R. Townsend will be co-chairmen for this meeting.

It is the sincere desire of the Officers and Directors of the Early American Industries Association that the policy of establishing meetings well in advance and always centering one meeting in the geographical area of the Association will lead to better attendance at our meetings.

COMMENDATION

The Officers, Directors, and Members of the Early American Industries Association wish to express their gratitude to Mr. Ralph Haynes, President of Old Salem Incorporated, Winston Salem, North Carolina and Mr. Robert Garvey, Executive Director of the same organization for the splendid program and facilities offered on the occassion of the meeting of the Early American Industries Association at Winston Salem, North Carolina on October 4, 5 and 6, 1957.

We also wish to extend our thanks to the charming Hostesses of Old Salem for their interest in our Organization and the outstanding assistance they afforded the membership at the Meeting. There can be no doubt that the October 1957 meeting was one of the finest in the history of the Association.

CORRECTION

In Volume X, Number 2, June, 1957 of the *Chronicle* of the Early American Industries Association the Editors printed an excellent article entitled "The Indian Broom" (pages 13, 14 and 24) by Mr. Laurence A. Johnson of Syracuse, New York. Two errors were made by the Editors in preparing this article for publication and as a result we desire to print the following correction to clarify this matter.

In the text of this article the term "Split broom" is used on a number of occasions. This should properly be "Splint Broom" throughout the article.

On page 13 of this same Article reference is made to the fact that there are those authorities who believe that the early Swedish and Dutch Settlers were the originators of the Splint Broom in this Country rather than the Indians. The Editors in readying the article for the printer misconstrued the Author's intent and made the positive statement that certain evidence discovered in an early 19th Century Day Book disproved the Dutch-Swedish Theory. The Author has kindly pointed out to the Editors that his evidence is not conclusive enough for such a statement and as a result the Editors wish to correct this situation and offer in lieu of the statement printed in the June Issue, the fact that there are at least two theories concerning the first manufacture of these brooms both of which have been noted here.

OF INTEREST

The Eleutherian Mills-Hagley Foundation in concert with the University of Delaware announces two $1,800 fellowships in American history for candidates for the M.A. degree.

For further details, address the Dean of the School of Graduate Studies, University of Delaware, Newark, Delaware.

BAG FILLERS

In Volume X, Number 3, September, 1957 of the Chronicle on page 31 we reproduced a page from the American Grocer, November 8, 1877. Mr. Edward Durell of Columbus, Ohio, pointed out that he thought that these Bag Fillers were also used for filling fruit jars. Mrs. Eloise Fowler Salmond of Westfield, Massachusetts wrote us that Mr. Durell's statement was correct. Mrs. Salmond tells that her mother used to can by the crate and bushel and that she used to help her. Her mother always used one of these useful and helpful articles for filling fruit jars and cans. Mrs. Salmond even called another "old Yankee" and was informed by her that she was correct in her statement. To quote Mrs. Salmond: "I had never thought of them as "bag fillers" but this is evidence that they were used for that purpose in grocery stores but they certainly were used as jar fillers in homes".

The Chronicle

Early American
Industries Association, Inc.

The purpose of the association is to encourage the study and better understanding of early American industry, in the home, in the shop, on the farm, and on the sea, and especially to discover, identify, classify, preserve and exhibit obsolete tools, implements, utensils, instruments, vehicles, appliances and mechanical devices used by American craftsmen, farmers, housewives, mariners, professional men, and other workers.

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Communications regarding the contents of *The Chronicle* and back issues should be addressed to the Editors; suggestions for members to Joseph W. Rake; all other matters to the President. Address as here given.

DUES

The annual dues are payable on January 1st and are $5.00. The *Chronicle* is published quarterly and is sent to all members without additional charge. Printed on the press of the *Virginia* Gazette, founded 1736, *Williamsburg, Virginia.*

MINUTES OF MEETING

(Winston-Salem, North Carolina, October 5, 1957)

Thirty-three members of the Early American Industries Association gathered in the Club Dining Room, Salem College, Winston-Salem, North Carolina (after luncheon), and were called to order at one thirty p. m. by Dr. Fred Sabin, President.

The President introduced Mrs. Helen Vogler, a descendent in the seventh generation of the Voglers who helped found Old Salem; and Mrs. H. D. Hall, of Worcester, Massachusetts, eighty-one years young, who has been an enthusiastic attendant at many an annual meeting.

The minutes of the meeting in Corning, New York, on June 8, 1957, recorded by Mrs. Josephine H. Peirce, Secretary *pro tem.*, were read by the Secretary, and accepted on motion of Mr. Keillor, seconded by Mr. Durell.

The Treasurer's financial statement, as of September 1, 1957, read by the Secretary, was accepted on motion of Mr. Durell, seconded by Mr. Rake.

The Secretary read two letters from Mr. Lewis N. Wiggins, from California, regretting that he could not be present, and conveying his greetings to old friends and members.

Mr. Geiger, the Editor, reported that the *Chronicle* would be indexed, in Williamsburg, from volume VI through volume X (including the December, 1957 issue), and that the index would be mailed to all members.

Mr. Rake, Membership Chairman, reported twenty-two new members: ten from New York State and others from a number of states including Ohio, Kentucky and Virginia.

Dr. Sabin paid tribute to the tremendous amount of vital work done for the Association by Mrs. Peirce and Mr. Rake.

Mr. Cooper, Chairman of the Whatsit Committee, reported that its activities were developing, though slowly, and that all must continue working.

Mr. Durell, Chairman for future meetings, announced they would be held early in June and early in October of each year, and that the tentative schedule of meeting places was as follows:

June 1958 — Doylestown, Pennsylvania
October 1958 — Dearborn, Michigan
June 1959 — Salem and Saugus, Massachusetts
October 1959 — Williamsburg, Virginia

Mr. Redhed said that he and Mr. Johnson had called on Mr. Simmons, Honorary Vice-President, at Richmondville, in July, and Mr. Rake told of having called on him after the Corning meeting.

The President announced the publication of a new book by Miss Mary Earle Gould, member of the Association, *Antique Tin and Tole Ware.*

The President expressed the grateful appreciation of all members to Mr. Ralph P. Hanes and the other officers of Old Salem, to Mr. Robert R. Garvey, Jr., and his staff, for all that each had done to make the meeting outstanding.

Mr. Thomas proposed a resolution, seconded by Mr. Durell, thanking Mr. Ralph P. Hanes, President of Old Salem, the officers and trustees of Old Salem, Mr. Robert R. Garvey, Jr., executive director, and every mem-

(Continued on Page 48)

MAKING HAY RAKES BY HAND

(From Rural Crafts of England, K. S. Woods, London, 1949)

A good rake should be as light as possible but the handles and teeth, or tines, must be very strong. Different lengths of handles are needed for different height people and a correct balance is necessary. The angle at which the tines are set in the rake head is still more important; if too sharp, the rake does not gather all the hay; if not sharp enough, the tines stick in the earth. The handle should be smooth.

For the handles, generally ash-poles are used which are steamed and pulled through a brake to straighten them (fig. 71.) They are rounded by an 'engine' that cuts like a pencil-sharpener; it swings round and round by two handles, starting at the thinner end of the pole (fig. 72.). The handle is then split up part way and

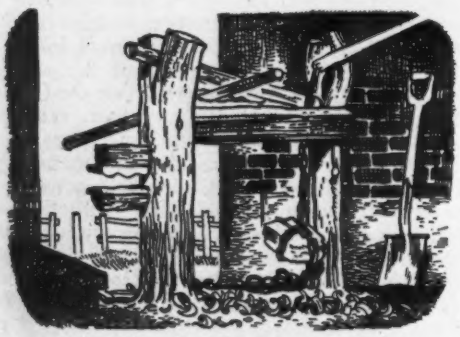


FIG. 71. A RAKE-MAKER'S BRAKE

The elbow-lever on the right enables both hands to be occupied with the draw-shave, and lifts the weight slightly and so releases the grip of the upper, sloping timber, so that the pole can be repeatedly shifted for shaving. Note the worn pads of soft-wood fixed to the timbers. These are easily renewable. After steaming, slightly crooked poles are drawn through the horizontal timbers on the left to straighten them. The uprights are sunk several feet into the ground. (See also Fig. 72.)

ringed with tin to prevent its splitting. The two split ends are pointed and driven into holes bored in the rake-head at the correct angle.

The tines are made of carefully selected billets, or small logs, about 2½ inches across, that have been well seasoned. These billets are quartered, and each quarter is hammered through a mandril, a small metal tube, sharpened at the top, set in a bench with a hole in it. The craftsman aims carefully towards the rounded side of each one, and knocks them through the hole, the upper ones pushing out those below. (fig. 73). The tines are now ready to be knocked into the holes bored in the rake head.

This can be done in a vice. An English craftsman from Berkshire invented the tining-horse, weighted with an old clock-weight, shown in fig. 74. A touch of the foot on a pedal releases the grip, so that the rake head

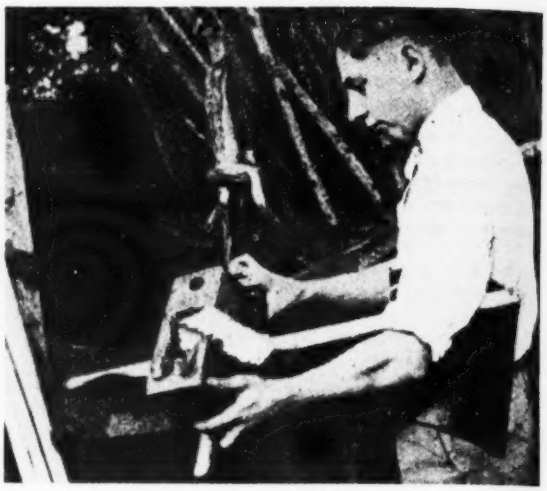


Fig. 72. Rake-Making
Shaving the handles with an engine—a rotary
Photo by C. F. F. Snow

can very rapidly be moved along into the next position with one hand while the other holds the hammer.

Smaller rakes have handles sawed by machine and then rounded in a rotary cutting-machine. A satiny polish is then given by means of a small plane with a curved blade, set in a block of hollowed elm that can be held in the hand. The tines are made from blocks of any hard wood thoroughly seasoned; elm is good, but it should be hand-cleft, not sawn. This means that, like the billets cut into four, the wood is split lengthways

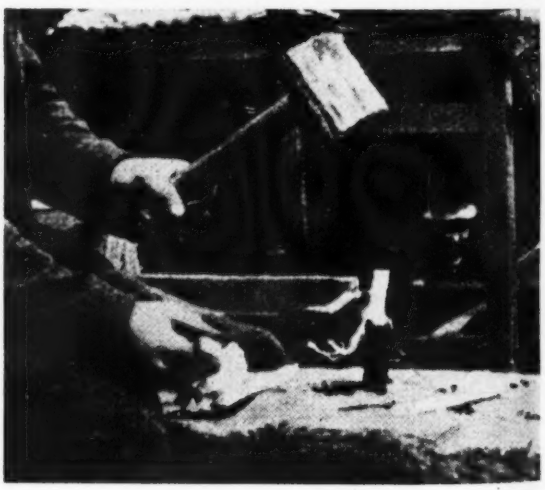


Fig. 73. Rake-Making

Rounding the rake-tines by knocking quartered billets of specially selected and well seasoned hazelwood through a mandrel.

Photo by C. F. F. Snow

with a knife or other tool. A clogger's knife, its very long handle shortened to a convenient length, is used to point the rake tines. A hook at the end of the blade acts as a swivel; it can be made to cut swiftly in various directions by a skilled worker, and is useful for many purposes.

Fig. 74. A Berkshire Rake-maker on his Tining-horse

COFFEE ROASTERS

(Continued from Page 39)

the space between the base of the cone A and funnel B, and thence down through the funnel into the perforated cup C, and while the cleared liquid passes through the perforations the grounds are trapped and retained in the cup. This process or operation being continued a few minutes renders the coffee perfectly clear and ready for use, thus saving the use of egg, isinglass, fish-skin, or any other article, ingredient, or compound, except the "Magic Coffee-Settler." (Editor's note: We could not help remembering the many good cups of coffee we have drunk brewed by throwing the coffee in the pot and letting her boil! We also remember how sometimes, if it had not settled properly, we drank the grounds along with the coffee — the "Magic Coffee-Settler" must have been in great demand!)

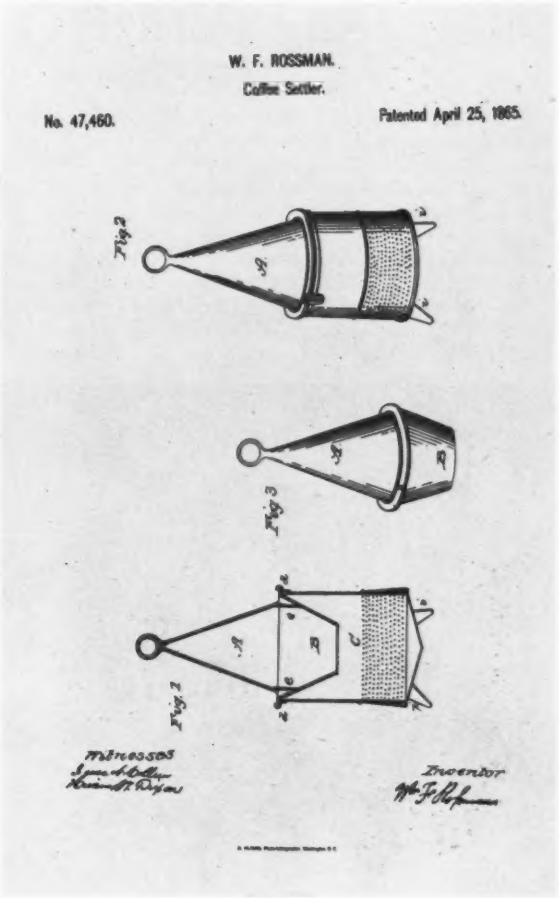


Figure 6a

Figure 6

Beekeeping Exhibit Open at Shelburne Museum

Enoch H. Tompkins, Burlington, Vermont

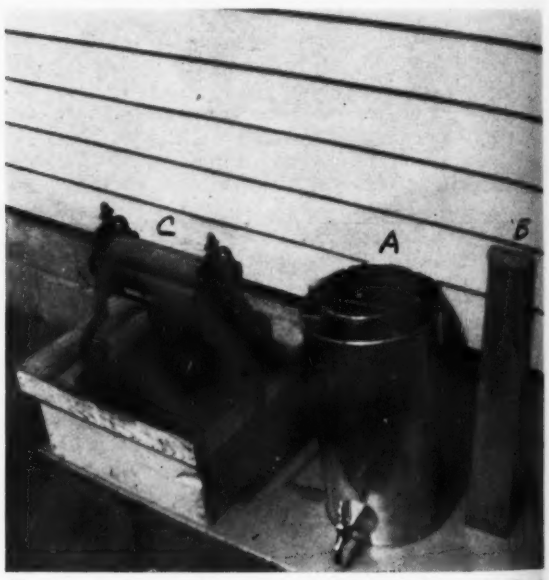
An exhibit of old-time beekeeping equipment is now open to the public at the Shelburne Museum in Shelburne, Vermont. This collection of old and rare beehives and apiculturist's tools is being sponsored by the Vermont Beekeepers Association in cooperation with the Museum. Fifty-five different items are now on display. These have been donated to the Museum by 15 beekeepers, ex-beekeepers, and friends of the association. More items are being added continually. They are being housed in the west end of the "Red Shed" where a room has been especially prepared for this collection.

Part of beekeeping exhibit at Shelburne Museum, Shelburne, Vt.

Among the items on display are various types of beehives, bee feeders, smokers, bee-hunting boxes, honey extracting equipment, and equipment for the manufacture of sheets of honeycomb foundation wax. There is also a horse-type section press for assembling comb honey boxes. This is operated by a foot pedal which lowers a press onto the partially assembled honey box. The pressure forces the dovetailed ends together and squares up the corners.

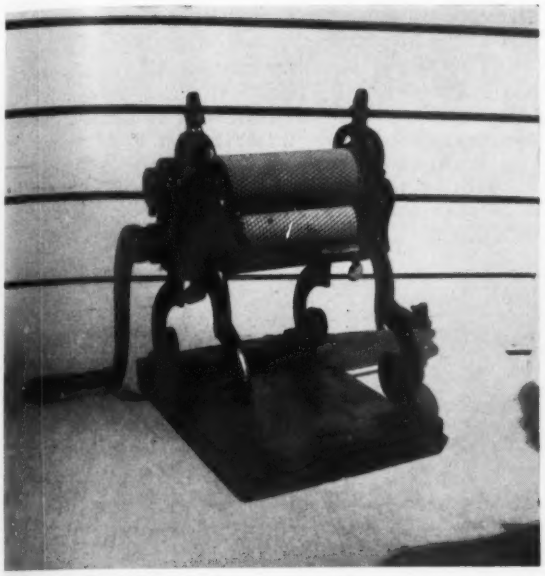
The collection of beehives shows the development of this item from the European type straw skep to the modern movable frame hive. It includes several types of box hives, including one which had a door in the rear and a hinged bottom board. Opening the door reveals a glassed-in brood chamber and an upper compartment for surplus honey boxes. The glass in the rear of the brood chamber enabled the apiarist to observe the bees as they worked. This was the forerunner of our modern observation hives. The hinged bottom board allowed the size of hive entrance to be adjusted and also enabled the beekeeper to open up the hive bottom for removing the honeycomb from the brood chamber. The earliest

Horse-type section press, in use around 1885



Equipment for making honeycomb foundation. A. Tank for melted wax. B. Dipping board. C. Vandervort foundation mill. In use around 1885.

type of box hive was a simply constructed box which made no provision for taking off surplus honey without destroying the bees. To remove honey from this hive it was first necessary to kill the bees with sulfur fumes. The honey-comb was then cut from the hive. A later development was a separate compartment in the upper part of the hive into which boxes for surplus honey could



Vandervort foundation mill with 6½ inch rolls.

be inserted. Bees could pass to these boxes through holes or slots in the bottom of the boxes and corresponding holes in the bottom of the compartment.

The next step forward was the development and invention of the "movable-frame" hive by the Rev. L. L. Langstroth of Philadelphia, Pennsylvania in 1851. This invention made it possible to remove individual combs from the hive for inspection of brood or removal of surplus-honey. One of the Langstroth Simplicity Hives with a portico is included in the collection.

Improved box type hive. A. Front view, showing adjustable bottom board and upper entrance. B. Rear view, showing door, glass in rear of brood chamber, and upper compartment for surplus honey.

An American Bee Hive, patented November 24, 1863 and October 10, 1865 is also included in the Museum's collection. This is a movable-frame hive with a glass and door in the rear and a removable side held in place by four hooks and eyes.

A special type of movable-frame hive was invented and used by Augustin E. Mannum of Bristol, Vermont around 1879. The museum has one of these "Bristol" hives together with its winter packing case and comb honey super.

The assortment of bee feeders includes several types of wooden trough-type feeders, a salt-box type, and a division board feeder for Mannum's "Bristol" beehive.

The bee smoker collection consists of a Clark Cold-blast Smoker (in use around 1890), and three types of the Bingham Smoker (in use during the same period and later).

The complete outfit for making honeycomb foundation wax was formerly used by Lavius Thompson of Weybridge, Vermont around 1885. With it he turned out prize-winning sheets of foundation for himself and neighboring beekeepers. This outfit consists of a tank

for melting beeswax, a dipping-board for forming sheets of wax, and a Vandervort Foundation Mill. The wax melting tank consists of an inner tank for the wax and an outer tank for hot water which helped to keep the wax at the desired temperature. This tank was heated over a small stove. The dipping-board is a tapered board 4⅛" x 24" with cleats at the large end which permit it to be hung up. This size is for making surplus honey foundation. When forming sheets of wax, the board was first moistened with water, then dipped into the melted beeswax. It was then hung up to allow the wax to harden. This process was repeated until the desired thickness was obtained. After thoroughly cooling, a sheet of wax could be peeled off each side of the board. The sheet of wax was then run between the rollers of the foundation mill. These rollers embossed the bases of the honeycomb cells in the sheet of wax. Use of this foundation saved the bees some work and produced the straight combs which were necessary for their easy removal from the hive.

A modern observation beehive containing a single comb with bees and queen adds interest to the exhibit. A wooden tunnel leading to a knothole in the wall provides an exit for the bees. In this hive, which has glass sides, may be seen the queen bee, the male bees or drones, and the worker bees which are undeveloped females. The queen is marked by a spot of white paint on her back which makes her identification easier. The observer can watch the queen lay eggs and see the young bees in various stages of development. The storage of nectar and pollen as well as the feeding of young bees is also seen. One may watch the "honey-dance" by which one bee tells the others the direction and distance to a new source of nectar. This observation hive shows what goes on inside a hive. A modern beehive holds ten combs of the type seen here.

Enoch Tompkins of Burlington and Robert Mead of White River Junction are members of the Museum Committee of the Vermont Beekeepers Association. They have been collecting the various items which are on display at the Museum.

The association solicits contributions to the collection and anyone having equipment, books, magazines, etc. to donate may get in touch with one of the Committeemen or take it directly to the Shelburne Museum. A card is attached to each item which shows who gave it and other pertinent information concerning the article. A letter of acknowledgement is sent by the Museum to each donor.

Novice honey extractor, in use around 1884

The Glove Veil has five cross-bars riveted through the center at the top. These button to studs on the neck-band. The bars are light spring steel; the neck-band is of hard spring brass. Netting was placed over this frame and tucked under the collar of the beekeeper's jacket. Advertised for sale by J. H. M. Cook, New York City, 1889.

MINUTES

(Continued from Page 43)

ber for their excellent program; assuring them that the magnitude and quality of the Old Salem exhibits, and the unusual interest of planned side trips, combined to make this visit one of the finest meetings in the organization's history. The resolution was passed by a rising vote, with enthusiastic applause.

Dr. Albright acknowledged the resolution on behalf of Old Salem, and said that there were still some events on the program, which they hoped the members would also enjoy.

Mrs. Seaman suggested that the Secretary write Mr. Wiggins that the members felt near to him in spirit, and sent their greetings.

The meeting adjourned at two o'clock.

Dorothy C. Barck, Secretary